

What is claimed is:

1. A magnetic disk drive system which is able to write data on and read the data from a rotating magnetic disk by a write head and a read head respectively

5 disposed at a distance from each other and has a head-distance measuring means for measuring said distance between said heads in the circumference direction of track of said disk.

10 2. The magnetic disk drive system of claim 1, wherein the head-distance measuring means computes said distance based on the position of the read head at the timing when said data is written with the write head and the position of the read head at the timing when said data is read with the read head.

15 3. The magnetic disk drive system of claim 1 or claim 2, wherein the write head writes the data for distance measurement in the position at a distance from the servo information in a sector, and the head-distance measuring means computes said distance based on the position where the data for distance measurement has been written.

20 4. The magnetic disk drive system of claim 3, wherein the data for distance measurement is written in all of the sectors of said track at the same write timing and said distance is measured at said sectors.

25 5. The magnetic disk drive system of claim 3, wherein the data for distance measurement is written in a plurality of selected sectors on said track at the same write timing and said distance is measured at said sectors.

30 6. The magnetic disk drive system of claim 4 or claim 5, wherein the data for distance measurement is written in the sectors of all of the tracks of said disk at the same write timing and said distance is measured at said sectors.

35 7. The magnetic disk drive system of claim 4 or claim 5, wherein the data for distance measurement is

written in the sectors of a plurality of the tracks selected of said disk at the same write timing, and said distance is measured at said sectors.

5        8. The magnetic disk drive system of claim 3, wherein, when said distance increases in the radial direction of said disk, the number of the sectors in which the data for distance measurement is written are increased per track.

10      9. The magnetic disk drive system of any one of claim 3 to claim 8, wherein the data for distance measurement is written in a position predetermined with reference to said servo information.

15      10. The magnetic disk drive system claim 9, wherein the data for distance measurement is written at the write frequency of said servo information.

20      11. The magnetic disk drive system of claim 9, wherein the data for distance measurement is written at the write frequency of the data written in the data area of said disk.

25      12. The magnetic disk drive system of any one of claim 3 to claim 11, wherein the head-distance measuring means obtains the position of the read head at the time when reading the written data for distance measurement, and computes said distance.

30      13. The magnetic disk drive system of claim 12, wherein said position of the read head is detected with reference to said servo information.

35      14. The magnetic disk drive system of claim 13, wherein said position of the read head is detected by incrementing the read timing of the read head sequentially from the position predetermined with reference to said servo information.

40      15. The magnetic disk drive system of claim 13, wherein said position of the read head is detected by decrementing the read timing of the read head sequentially from the position predetermined with reference to said servo information.

16. The magnetic disk drive system of claim 13,  
wherein said position of the read head is detected by  
renewing the read timing of the read head while repeating  
the increment and the decrement of the read timing of the  
read head alternately centering the position  
predetermined with reference to said servo information.

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17. The magnetic disk drive system of any one of  
claim 13 to claim 16, wherein said position of the read  
head is detected by including the end position of the  
10 data for distance measurement in the search window opened  
at the read timing of the read head.

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18. The magnetic disk drive system of claim 17,  
wherein said position of the read head is determined  
based on the largest one in a plurality of said read  
timings corresponding to a plurality of said search  
15 windows in which said end position is included.

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19. The magnetic disk drive system of any one of  
claim 13 to claim 18, wherein the read head performs the  
read operation at the same read timing for the plurality  
20 of said sectors in which the data for distance  
measurement has been written.

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20. The magnetic disk drive system of any one of  
claim 1 to claim 3, wherein a plurality of positions,  
where said distances are measured, in the radial  
25 direction of the disk, are selected, and said distances,  
which are not measured, in relation to the other  
positions, are determined by interpolation based on said  
distances measured in correspondence with said positions.

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21. The magnetic disk drive system of claim 20,  
30 wherein a plurality of positions where said distances are  
measured are selected at regular intervals.

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22. The magnetic disk drive system of any one of  
claim 1 to claim 21, wherein the distance measured by the  
head-distance measuring means is stored.

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23. The magnetic disk drive system of claim 22,  
wherein the distance measured by the head-distance  
measuring means is stored in the internal memory of the

system.

24. The magnetic disk drive system of claim 22, wherein the distance measured by the head-distance measuring means is stored in said disk.

5 25. The magnetic disk drive system of any one of claim 22 to claim 24, wherein said distance is measured and stored when the power of the system is turned on.

10 26. The magnetic disk drive system of any one of claim 22 to claim 25, wherein said distance is read out when the power of the system is turned on.

15 27. The magnetic disk drive system of any one of claim 22 to claim 26, wherein when data is written on said disk, the write timing of the write head is determined by adding said distance to the position where the data is written.